Drug Therapy Protocols: Oxygen

<table>
<thead>
<tr>
<th>Policy code</th>
<th>DTP_OXYG_0120</th>
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<tbody>
<tr>
<td>Date</td>
<td>January, 2020</td>
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<tr>
<td>Purpose</td>
<td>To ensure a consistent procedural approach to oxygen administration.</td>
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<tr>
<td>Scope</td>
<td>Applies to all Queensland Ambulance Service (QAS) clinical staff.</td>
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<td>Health care setting</td>
<td>Pre-hospital assessment and treatment.</td>
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<tr>
<td>Population</td>
<td>Applies to all ages unless specifically mentioned.</td>
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<tr>
<td>Source of funding</td>
<td>Internal – 100%</td>
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<tr>
<td>Author</td>
<td>Clinical Quality &amp; Patient Safety Unit, QAS</td>
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<td>Review date</td>
<td>January, 2023</td>
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**Oxygen**

**Drug class**
Gas

**Pharmacology**
A colourless, odourless gas essential for the production of cellular energy.

**Metabolism**
N/A.

**Indications**
- A wide range of conditions resulting in, or potentially resulting in systematic and/or localised hypoxia.

**Contraindications**
- Known paraquat poisoning with SpO2 equal to or greater than 88%
- History of bleomycin therapy with SpO2 equal to or greater than 88%

**Precautions**
- Patients with paraquat poisoning or bleomycin lung injury may be harmed by supplemental oxygen. Avoid oxygen unless the patient is hypoxaemic – target 88–92%.
- Prolonged administration to premature neonates.
- Newly born infants will have low SpO2 for the first 10 minutes following birth – refer to CPG: Resuscitation – Newly born.
- Patients with cyanotic heart disease may have saturation targets between 75% to 85%. Paramedics should attempt to ascertain optimal target saturation levels for these patients from carers or health professionals.
- A BVM will not supply adequate oxygen unless IPPV is provided.
- The use of high flow oxygen in an attempt to protect against subsequent hypoxaemia in the event of deterioration has the potential to delay the recognition of such a deterioration. This may provide a false reassurance that the patient is stable.

**Side effects**
- Hypoventilation in some COPD patients with hypoxic drive.
- Drying of airway mucous membranes.
### Oxygen

#### Presentation
- Size C Cylinder, 450 L *medical oxygen*
- Size D Cylinder, 1600 L *medical oxygen*

#### Onset | Duration | Half-life
--- | --- | ---
Immediate | N/A | N/A

#### Special notes[^1]
- The administration of oxygen to correct hypoxaemia is evidence based, severely hypoxaemia is harmful. The provision of supratherapeutic amounts of oxygen in a number of conditions including reversible cardiac ischaemia have been associated with poorer outcomes.[^1]
- Diving accidents are **NOT** covered by this DTP – officers are to administer high flow oxygen.
- QAS oxygen saturation monitors are unable to differentiate between carboxyhaemoglobin and oxyhaemoglobin, therefore patients with carbon monoxide poisoning are to be administered the maximum oxygen dose irrespective of SpO₂ readings.
- For patients with COPD, nebulised salbutamol is to be delivered via nebuliser mask at a rate of 6 L/minute. For all other patients 8 L/minute is appropriate for nebulising drugs.
- The FiO₂ levels delivered by the different delivery systems may vary considerably between patients and be influenced by a number of factors, including respiratory rate and whether the patient’s mouth is open or closed.

#### Schedule
- Unscheduled.

#### Routes of administration

**Inhalation (INH)**
- Nasal cannulae (NC)
- Nebuliser mask (NEB)
- Simple face mask (SFM)
- Non-rebreather reservoir mask (NRBM)
- Bag-valve mask (BVM)
- Laryngeal mask airway (LMA)
- Endotracheal tube (ETT)
- Continuous Positive Airway Pressure (CPAP)
## Adult/Paediatric dosages

<table>
<thead>
<tr>
<th>Condition</th>
<th>Action</th>
</tr>
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<tbody>
<tr>
<td>Intra-arrest, CO poisoning, Cyanide poisoning, Preoxygenation for RSI</td>
<td>Administer 100% O2</td>
</tr>
<tr>
<td>Intra-arrest, CO poisoning, Cyanide poisoning, Preoxygenation for RSI</td>
<td></td>
</tr>
<tr>
<td>Paraquat toxicity, Bleomycin treatment, Obesity, COPD, Cystic fibrosis,</td>
<td></td>
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<tr>
<td>Neuromuscular disease</td>
<td>Titrated oxygen to achieve SpO2 88–92%</td>
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<tr>
<td>All other presentations NOT listed above</td>
<td>Titrated oxygen to achieve SpO2 92–96%</td>
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